



Fig. 1.—Reverse of the Medal by Caradosso, struck on the first stone of St. Peter's being laid by Pope Julius II., 1506, showing Bramante's first design. (From an engraving by Agostino Veneziano, dated 1517.)

ST. PETER'S, ROME.

THE THIRD ROYAL ACADEMY LECTURE, SESSION 1901.

DELIVERED 5TH FEBRUARY.

By Professor AITCHISON, R.A., *Past President, Royal Gold Medallist.*

I THINK I am bound to give you the names of all the architects, if it be possible, not only of those absolutely engaged in the building of St. Peter's, but of those also who made designs or models that have come down to us: Bernardo Rossellino (Gamberelli) (1409-1461), Donato Bramante (1444-1514), Baldassare Peruzzi (1481-1537), Fra Giocondo (1435-1515), Giuliano da San Gallo (1445-1516), Antonio da San Gallo the younger (1482-1546), Michelangelo (1474-1564), Perino del Vaga (1500-1547), Pirro Ligorio (1530-1580), Jacopo Barozzi da Vignola (1507-1573), Giacomo della Porta (died 1601 or 1604), Domenico Fontana (1543-1586), Carlo Maderno (1556-1629), and Giovanni Lorenzo Bernini (1598-1680).

I told you in the first lecture that, as far as we know, Bernardo Rossellino was the first architect for a new St. Peter's in the days of Pope Nicholas V.; it is generally supposed that the great Leon Batista Alberti worked with Rossellino on some of his former works: that is, that Alberti is supposed to have furnished the architectural designs, and Rossellino the sculpture. This assignment is purely theoretic, as Alberti was a painter, sculptor, and architect, as well as one of the founders of Italian prose, and is introduced by Count

Castiglione in his *Courtier* as one of the speakers at the Court of Urbino. The next architect was Donato Bramante of Urbino, who was appointed by Julius II. I do not know whether he had any aid on his first appointment, but we shortly after read of Antonio da San Gallo being employed as a carpenter to make models, and that when Bramante had the palsy in his hands, Antonio was given him as a draughtsman; but Baron H. de Geymüller gives plans which he says were drawn by Peruzzi for Bramante.

Donato Bramante is supposed to have been born at Castel Durante, in the State of Urbino, in 1444, and died in 1514. Bramante learned to read and write, and employed himself greatly in arithmetic; but his father, who had need of help from his son, seeing that he delighted much in drawing, directed him to the art of painting, and he studied much with Fra Bartolommeo, commonly called Fra Carnavale, of Urbino; but since he always delighted in architecture and perspective, he left Castel Durante and went into Lombardy. He then went to Milan, where he found Cesare Cesariano, who became his pupil, and who afterwards published a translation of Vitruvius in Italian, which he annotated and commented on. This book was published by Gotardo del Ponte in 1521, at Como.

Cesare Cesariano was born in Milan in 1483, and died 1542 or 1546.* He is said to have gone mad from the smallness of the sum he got from the publisher for translating and annotating Vitruvius. In the Como edition of 1521 Gotardo da Ponte, the publisher, tells us that Cesariano abandoned the work before he had corrected the proofs and completed it, and that he had to get Benedieto Jovio and Bono Mavro, two eminent scholars, to finish it, at great expense to himself, and that as Cesariano had abandoned the work he had no claim to the merit of it. It is curious to see how disputes between publishers and authors were as rife four or five hundred years ago as they are now, and how each party tried to throw the blame on the other.

In Cesare Cesariano's annotations to the sixth book of Vitruvius, cap. 5, *On the Symmetry of Triclinia and Echedras*, he calls Bramante Donatus; he speaks of the distribution of columns in the church of San Satyro, Milan: he also speaks of Santa Maria of St. Celsus, where the columns are put on a podium, while in San Satyro they are put on the ground, p. icix. (99).

Bramante had done many architectural works, but he still continued his painting, and generally signed himself "Architect and Painter." He is said to have met with Julius II. at Bologna, and to have come to Rome in 1500, where he made for Julius II. the design for the new St. Peter's. This, as far as the plan goes, is a very fine one. The nave and transept cross at right angles, and are practically the same width and length. Chapels or disengagements at the entrances keep the aisles clear of the great piers of the dome. The four sacristies at the angles are square, with large niches in each corner; each sacristy has a projecting entrance to the aisles, which, by means of columns, make an irregular octagon; the four solid angles being just half the width of the sides with columns. The nave and transept are about six times as long as they are wide, the width being about 87 feet; the aisles are about 40 feet wide in their narrowest parts, and are about a ninth of their length. The pilasters of the great piers of the dome project beyond the ordinary pilasters, and so make the openings into the nave and transept under the dome rather smaller than the general width. I believe that Bramante had elaborated some formula of numbers to make the whole interior harmonious. The plan, being in the form of a Greek cross, met with great opposition, as was to have been expected. Almost all the plans submitted by other architects were Latin crosses, except those by Peruzzi and Michelangelo; Peruzzi's plan Baron de Geymüller considers to be merely a slightly altered version of one of Bramante's designs. The ecclesiastical prefer-

* It is said that there is a Life of C. Cesariano by the Marquis Poleni, and by De Pagave.

ence for a Latin cross at last overcame the judgment of Bramante and Michelangelo, and so the artistic superiority of the original composition had to give way to combined anti-quarianism and the hatred of the former form of faith, then looked upon as a hateful schism, while the fall of Constantinople to the Turks in 1453 robbed the Greek Church of any influence that the power of the Byzantine Empire might have given it; but all architects

BRAMANTE'S FIRST
DESIGN FOR S' PETERS.

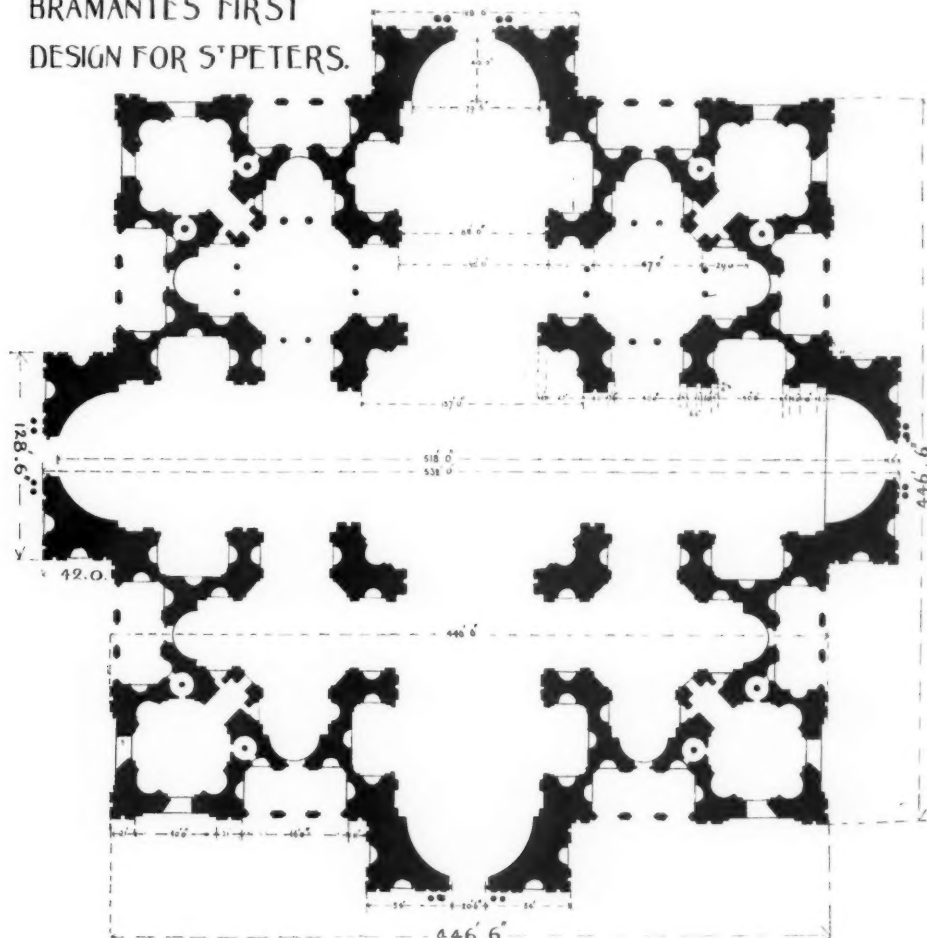


FIG. 2.

will see that a square, from the centre of which rises a large dome, makes a satisfactory composition, as the dome can be equally well seen from every side, if it be surrounded by an open square, as Bramante and Michelangelo proposed; whereas if the dome is over the crossing of the nave and transept of a Latin cross, when seen in perspective in front of the long nave, the effect of the dome is spoiled, for the drum is lost; in fact the dome only can be seen by persons on the pavement in front of the Basilica.

In the hall of Constantine at the Vatican, Giulio Romano painted for Rafael a picture of Bramante as a bald-headed man showing to the Pope a design in the form of a Latin cross for St. Peter's.*

Bramante, who was exceedingly fertile, seems to have made no objection to any of the alterations suggested, or at least he must have carried out in his sketches many of the suggestions offered him, and we have many of his designs with ambulatories round the apses, and even some where the whole body of the Basilica was a Latin cross, while Rafael's plan, as well as those of Giuliano da San Gallo and Fra Giocondo, were all pure Latin crosses.

As Bramante is considered to be the Renaissance architect who has given a particular style to architecture since his time, which has been called the Bramantesque style, it may be well before enlarging on his design for St. Peter's to say something about his works, and I must tell you that it is a most difficult thing to be certain whether a building is rightly attributed to the architect who is generally supposed to be its author. For example, the great Palazzo Pubblico at Brescia has, till quite lately, been attributed to a variety of architects, Fra Giocondo amongst them; but I believe it is now settled that Formentone of Vicenza was the architect, and designed it about 1489, and it was begun in 1492, and yet so little is known of so great a genius that I do not recollect ever noticing any other building that has been attributed to him. There is scarcely a doubt that Bramante built a great many things during his residence in Lombardy besides the dome and apse of the Sta. Maria della Grazie at Milan—for instance, his door to the Duomo at Como; but his works in Lombardy have not been considered of sufficient importance to have the name of the architect affixed, or there is so little certainty about Bramante being the architect that it is generally omitted. We know that Bramante was called in as architect, or assistant or consulting architect, at the Cathedral of Milan to settle the stability of the dome, spire, or lantern, whichever you may call it, of the Cathedral.

I believe there is no doubt that Bramante built the sacristy and the nave modelled in perspective of Sta. Maria presso San Satyro at Milan, which, I am sorry to say, I never saw, though I visited Milan several times when I was a student in Italy from 1853 to 1855. Baron H. de Geymüller has given me permission to use the prints of the church and sacristy [figs. 4, 5, and 6] from his "School of Bramante," in the R.I.B.A. TRANSACTIONS, Vol. VII. New Series. The interior of the sacristy is extremely fine, and is strongly marked by one of Bramante's methods, if we may not call it his discovery. It was usual amongst the Tuscan architects, in the inside of any building, to keep the pilasters a little away from the angles on both sides; but Bramante here put them as one wide pilaster at the angle itself, which gives a look of strength to the angles. Another invention of his with pilasters is to make two comparatively close together and the next two wide apart, as is done in the Cancelleria at Rome. Bramante has here adopted a like device to that of Pietro Lombardo at the Cornaro Spinelli Palace at Venice, of enclosing the round-headed windows of the first floor with a square frame and a cornice to preserve a vertical and horizontal effect. The whole of the interior of the sacristy of Sta. Maria presso San Satyro at Milan was beautifully ornamented with terra cottas by Caradosso. In the centre of the frieze over each archway there are medallions framed by circular wreaths containing very fine heads, and the space between these medallions and the projecting portion of the frieze over the pilasters is filled up with children playing.

I should tell you that a good part of the time of the Renaissance architects was taken up with the repair, reconstruction, or addition to fortified places, and also to forming canals and watercourses. I am by no means sure that Bramante carried out any canals, but he

* *Projets primitifs pour la Basilique de San Pierre de Rome*, par le Baron Henry de Geymüller, plate 28, fig. 1.

certainly had to repair and enlarge many fortifications. He is said to have built a porch, formed by a gigantic vault supported on two stories of double columns, and crowned with a pediment, to the front of the Church of Abbiate Grasso in 1477; and he also did some work at Como Cathedral; on the south side there is a door still called Bramante's door, before



FIG. 3.—FORMENTONE'S PAL. PUBBLICO AT BRESCIA

mentioned, which was begun in 1491. Since 1495 one of the richest Cardinals, Raffaello Riario, had been building one of the largest palaces at Rome from Bramante's design, now the Cancelleria. Bramante was employed by G. Galeazzi and by Ludovico il Moro; there is a letter extant, of the 11th December 1493, from the Duke of Milan to his ambassadors at Florence and Rome, commanding them to search for Bramante and order him to return.



FIG. 4.—SANTA MARIA PRESSO SAN SATIRO, MILAN: UPPER STORY OF BRAMANTE'S SACRISTY.
(From Baron H. de Geymüller's illustration in his *School of Bramante*.)



FIG. 5.—SANTA MARIA PRESSO SAN SATIRO, MILAN: LOWER STORY OF BRAMANTE'S SACRISTY.
(From Baron H. de Geymüller's illustration in his *School of Bramante*.)

As I mentioned before, there is so little absolute certainty about any work of the Renaissance architects, except perhaps Michelangelo's, that it has been stated that the Cancelleria Palace itself is not Bramante's work, and that he was not the architect to the palace which he is supposed to have built near the Piazza Scossa Cavalli, now called the Palazzo Torlonia, and once the Giraud Palace, but its peculiar elegance strikes every architect as being his. The cloisters

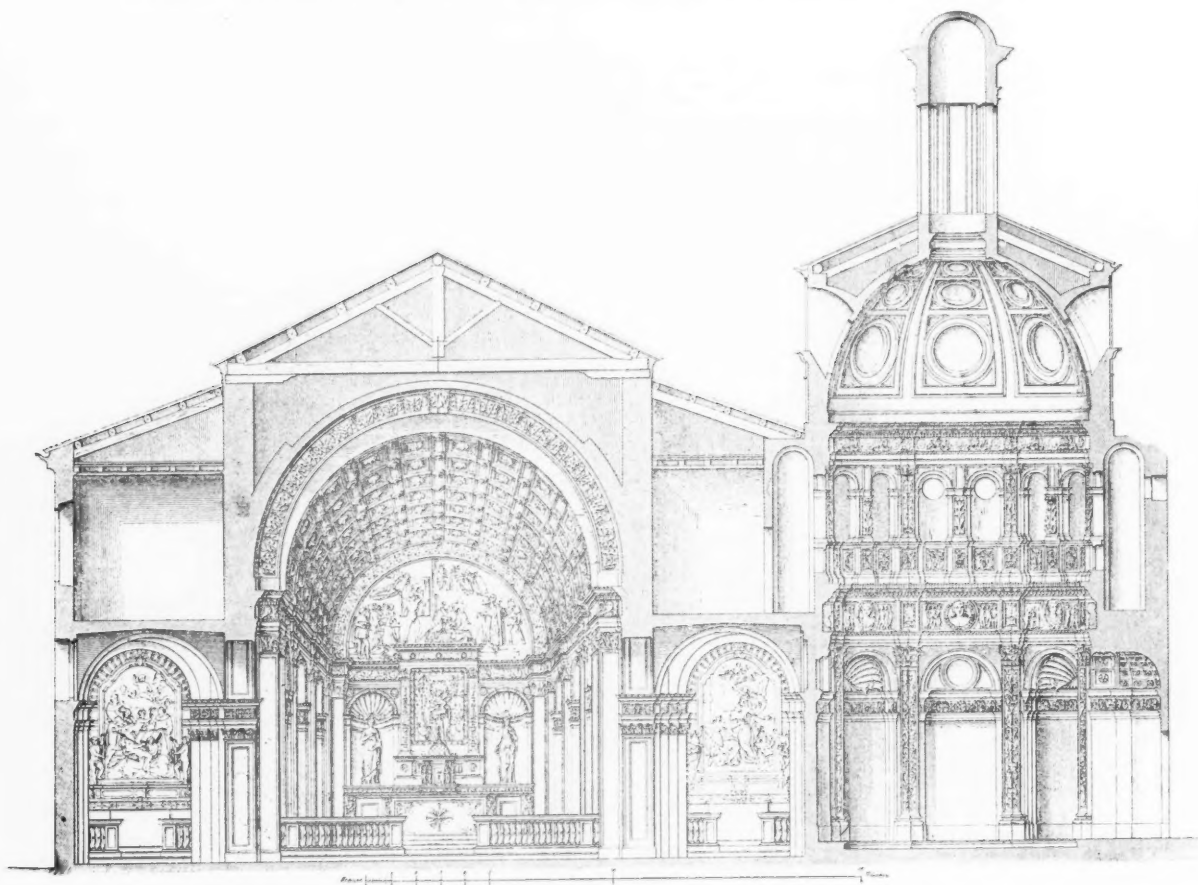


FIG. 6.—SANTA MARIA PRESSO SAN SATIRO, MILAN: SECTION SHOWING THE PERSPECTIVE DECORATION IN BASSO RELIEVO, AND THE SACRISTY.
(From Baron H. de Geymüller's illustration in his *School of Bramante*.)

of Sta. Maria della Pace at Rome are said to have been built by him in 1504, and consist of an arcade with Ionic pilasters in front of the piers, supporting an entablature over which is an unpierced parapet with a capping, while over the pilasters the pedestals of the upper pilasters slightly project, and between the pilasters, so as to be over the middle of each arcade, are small columns supporting an entablature with a modillion cornice; the whole is very simple, but from the beautiful arrangement and proportions it makes a most admired composition. I must mention one thing that Bramante did, he built in the cloisters of San Pietro in Montorio a little chapel over the place where St. Peter is said to have been crucified. The

name Montorio ("The Golden Mount") is from the colour of the sand, a small portion of which is brought up and shown to travellers.

There is one thing I particularly wish to mention before going on with this: it is that we are now almost nauseated with repetitions of the orders—good, bad, and indifferent; but at the Renaissance the neglected ruins of Rome and Italy revealed a new grace to the Italians, and in reading through Vasari you will learn the sort of rapture he felt at some architect



FIG. 7.—BRAMANTE'S CANCELLERIA, ROME.

having found an old Roman base or capital, and used it for some new building. Spenser, who was born in 1553, speaks of "neat Ionic work" as something to be cherished and admired; and Milton, who was not born till the beginning of the seventeenth century (1608–1674), makes Satan's palace of revived Roman architecture. I speak of these matters to make you comprehend the very different feelings with which indifferent Roman architecture was then viewed from the feelings it now evokes, and in considering the effect of St. Peter's you should give that age credit for being charmed with the novelty and the new grace to which it had not been accustomed.

But to return to this chapel of Bramante's, commonly called his "Little Temple." So exquisite did it appear to his contemporaries that Serlio devotes a few sentences to it in his book of Architecture, the plan and elevation filling up two of the pages in his

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third book. He says: "On the past page I have said I would show the Little Temple of Bramante larger, which is not very big, but was wholly to commemorate the Apostle St. Peter, because it is on the very place, it is said, where the said Apostle was crucified. The said temple is measured with the ancient Roman foot, which foot has 16 digits, and every digit has

4 minutes, which measure is found in the palm, with which is measured the Pantheon, and on six faces the diameter of this temple is 25 feet and 22 minutes; the distance from the portico round it to the temple is 7 feet, the size of the columns is 1 foot and 25 minutes, the width of the door is $3\frac{1}{2}$ feet. Those little squares with those circles within them, which are round the portico, show the coffers over the columns; the thickness of the wall is 5 feet." This description is on the plan, and he goes on, on the next page: "This is the upright (elevation) of the Temple which on the other side is shown in plan, which represents the outside part, and is all of Doric work, which you can understand from the drawing. As to the particular measurements I do not trouble myself about them, because from the plan you can understand the upright on account of this, that however little it is, it is proportionally drawn and transported with the proper measures from large to small."



FIG. 8.—WINDOW, CANCELLERIA, ROME.

I have already given some account of Bramante's first plan of St. Peter's, which is in many respects a most successful plan, both for the outside composition and the inside, but, as I formerly said, I do not think the front is quite happy, for although we know that the heathen temples had porticoes for shelter, it is rather a method of hiding the appearance of a crowd than of emphasising it. On that little design for the front of St. Peter's, on the back

of which Antonio da San Gallo has written, the entrances are strongly marked by huge vaults, although the bell-towers are too wide for the frontage itself. In reality we know nothing of Bramante's proposed finishing of the interior; there is a partially finished perspective, found by Letarouilly, supposed to be by Bramante, but this was, I think, made after the proposed ambulatories were put round the apses. (Plate 21 in Geymüller's book.) There are Corinthian columns or pilasters to the great piers of the dome in the transept and in the choir, and also in the choir itself; these columns or pilasters have no bases. The only thing I may remark here is, that nearly every design that was given after that first one of Bramante's was more or less in the shape of a Latin cross, *i.e.* the plans of Fra Giocondo, Giuliano da San Gallo, Rafael and Antonio da San Gallo and the rest, except Baldassare Peruzzi's and Michelangelo's, who had adopted a Greek cross for the plan. It is not difficult to account for this, as the bulk of the Romanesque and Gothic churches were in this form, and, like everything else, architecture begins from something, whether it be a cave or a wooden hut.

I have mentioned before the ecclesiastical objections to a Greek cross, and it is natural that the architects who hoped to get the work would endeavour to please the important ecclesiastics by whose influence they hoped to obtain it.

The following is a *rough translation* of what Vasari says: "It is seen in this part, which was finished by himself, that the cornice all round the inside runs in a graceful manner, and that the design of this no hand can lessen or take away. One sees in his capitals, which are of olive leaves, and in the whole outside work, strangely beautiful work of a Doric character. So great was the intellect of Bramante that truly if he had had strength equal to the wit with which his spirit was adorned, he most certainly would have made more unheard-of things than he did, because at present this work, as is said in its own place, has been since his death much disordered by the architects, and to such an extent that one may say that of the four outward arches which support the Tribune there is not remaining one of his, because Rafael d'Urbino and Giuliano da San Gallo, executors of the work after the death of Julius II., together with Fra Giocondo of Verona, began to alter it, and after the death of these Baldassare Peruzzi, making in the cross towards the Campo Santo a chapel for the King of France, altered the order, and under Paul III. Antonio da San Gallo changed it altogether, and then Michelangelo Buonarrotti, disregarding so many varying opinions and reducing the superfluous expense, brought it to that beauty and perfection that no one of the previous successors to Bramante had ever thought of, everything coming to this perfection from Michelangelo's design and judgment, although, as he himself said to me many times, he was only the executor of the design and arrangement of Bramante, since those who first plan a great edifice, they are the authors." And Michelangelo writing to a friend thus expresses himself: "One cannot deny that Bramante was as excellent in architecture as any one has been from the ancients to now. He placed the first stone of St. Peter's, not full of confusion, but clear, neat, and luminous, and isolated all round in such a way that it injured no part of the Palace and was held to be a beautiful thing, as is still apparent, in such a way that any one who has departed from the said order of Bramante, like San Gallo has done, has departed from the truth."

I think that what Michelangelo called the first stone were the four piers and the arches over them for the drum of the dome.

Considering that Bramante and Michelangelo did not very well agree at first, and had quarrels about the Sistine Chapel, I do not think a more splendid testimonial to the excellence of his design could be desired than this of Michelangelo's after he had made himself thoroughly acquainted with Bramante's scheme.

THE HIGHER EDUCATION OF ARCHITECTS.

By ARTHUR CATES [F.].

VI. L'ÉCOLE SPÉCIALE D'ARCHITECTURE—M. ÉMILE TRÉLAT.

N EARLY forty years have passed since the Professor of Civil Construction at the Conservatoire des Arts et Métiers, deeply impressed by the imperfect nature of the architectural education then afforded by the Ecole des Beaux-Arts, and by the length of time occupied in obtaining it, such as it was, conceived the idea of establishing a school which, although not gratuitous, but requiring payment of adequate fees to maintain its operations, should in fact be more economical for the student than the gratuitous school, by reason that its teaching would be more effective, and in three years would produce results more satisfactory to the student desiring to practise in the profession of architecture than could ordinarily be obtained in six, eight, or even ten years in the free school.

This school should unite in itself the complete system of instruction necessary for thorough preparation for the profession of an architect. The instruction should be based on three main principles:

1. The acquisition of a series of absolute attainments which would constitute the technical knowledge of the architect.
2. The guiding and exalting the intelligence of the artist to a complete appreciation of the true aims of art in architecture, and in developing its methods of expression.
3. The assimilation of the preceding by the actual exercise of their application in drawing and composition in design, in which the art of drawing is of the highest importance.

Actuated by these considerations, and by the fact that architecture was the only liberal profession which had not a special and complete course of instruction appropriated for it, M. Emile Trélat projected the *Ecole Centrale d'Architecture*, which should supply that professional instruction for the architect at which the Ecole des Beaux-Arts did not aim.

To attain this end he founded, 9th August 1864, the Société de l'Ecole Centrale d'Architecture à responsabilité limitée, capital 400,000 francs, increased in 1868 to 500,000 francs (£20,000).

The capital of this limited company was raised from 130 subscribers of all classes, imperial princes, ministers of State, deputies, architects, engineers and contractors; and the statutes provided that the profits, if any, should be appro-

priated first to form a reserve fund of 100,000 francs, then to payments to the shareholders of 5 per cent. on their capital, and the balance to the formation of a redemption fund for the capital.

The "Ancien Hôtel de Chaumes," in the Rue d'Enfer, was acquired and converted into the school, which was opened 10th November 1865 with 54 students admitted from 73 candidates who had applied and submitted to the Entrance Examination. In 1866 there were 78 candidates examined, of whom 54 were admitted to the school.

Generous friends of the school, the Government and publishers, aided it by liberal gifts of important and valuable books, scientific collections, works of art, collections of casts, and the founding of prizes, and work progressed so well and received such favourable recognition by the Government that in 1870 the Ecole was reorganised, with a capital of 600,000 francs contributed by 180 subscribers, without expectation of profit, as *l'Ecole Spéciale d'Architecture reconnue, Etablissement d'Utilité Publique*, and a small annual subvention was granted by the State.* This recognition was given notwithstanding the remodelling in 1868 of the system of education in the Ecole des Beaux-Arts, which may have been in some degree influenced by the action of M. Trélat and the success of his Ecole.

The Ecole then removed to its present location, 136 Boulevard du Mont Parnasse, and is a remarkable testimony of what can result from the untiring energy and devotion of one man, giving himself entirely to the attainment of his object, and knowing how to bring and keep together a band of teachers who will carry out his ideals, and whom he can inspire with his own enthusiasm, to provide by lectures and classes the instruction necessary for thorough professional education, to conduct the ateliers so as to free the artist from artificial trammels, and while bringing into action his productive powers reduce his work and digressions into method, free his imagination, train his hand and eye, and form his taste.

The success of M. Trélat's efforts in rivalry with the Ecole des Beaux-Arts naturally aroused the bitter hostility of the supporters of the system of the older institution, who scoffed at the Ecole

* In the budget for the current year 1901, this subvention is stated as 20,000 francs (£800).

Spéciale as adapted to produce decent masons, but not architects. In 1872 M. Charles Garnier, himself a Grand Prix de Rome and architect of the New Opera House, severely criticised designs by two Professors and two pupils of the Ecole Spéciale exhibited in the Salon of that year, denouncing in no measured terms the system of teaching which infected the atmosphere in which the students lived, and by the artistic utopias inculcated inducing them to pass their time in indefatigable studies, aiming to so turn and twist stones and monuments that they may resemble nothing which has ever previously existed. A smart controversy ensued with M. Trélat, who summed it up that if M. Garnier considered architecture as a *permanent* art, he advocated it as *evolutionary* and *progressive*; and the jury of the Salon confirmed this view by awarding a first medal for architectural design to one of the four exhibitors, and a prize to another.

The profession of architecture requires technical instruction which has no place in the studio of the artist, and artistic education which cannot be obtained in scientific schools; the Ecole Spéciale aims at assisting both in its course of instruction.

The Teaching Staff numbers twenty-eight in all, of whom two are "chefs d'atelier," one professor of drawing, twenty professor lecturers, and five instructors. The course is for three years, the school period being from 10th October to 10th July, and the vacation from 10th July to 10th October.

The fee for tuition for each year is 850 francs (£34), payable in advance in four amounts. The school hours are from *before* 10 a.m. to 5 p.m., with an interval of one hour. The chief work is done in the ateliers, supplemented by that of the drawing schools and of the lectures, and by competitions on given subjects, conferences in which the work of the competitors is discussed, and examinations on the subjects of the lectures.

In the third class (first year) the lectures are more important than the ateliers, and in the second class (second year) also, while the time occupied in the ateliers assumes its greatest importance in the first class (third year), the distribution of time being generally for the first two years five hours in the atelier and drawing school, in the first making designs on set subjects, in a progressive course; in the latter developing the art of drawing, and working out subjects of all kinds arising from and illustrating the lectures; one hour appropriated to a lecture or oral instruction, and one hour as interval. The progress of individual students is checked during the session by examination on each branch of tuition, and by a general examination at the end of each scholastic year.

During the vacations pupils are expected to produce original work on some architectural subject, by drawings, sketches and restorations, and reports, which on their return to the school

have marks allotted to them to be added to those previously gained. Each year forms a class, and pupils are passed on from one to the other, on condition of having satisfied the several examinations and competitions of the year and the requirements of vacation work.

At the end of the third year a competition for the *Diplôme de l'Ecole* is held, which occupies from 1st May to 1st October, the period from 1st May to 10th July being devoted to working out a design on a programme set by the Director, and from 10th July to 31st September on vacation work.

There is also a special competition in applied hygiene for the certificate of *Architecte Salubriste*.

Admission to the Ecole is gained by passing an Entrance Examination, held in Paris, and, if required, in the provinces.

The applicant must produce a drawing of ornament from the round, a drawing in plan, elevation, and section of a building produced from a figured sketch, an essay in French, and must submit to examination in *Arithmetic*, including cube root, rule of three, simple interest, discount, arithmetical and geometric progression. *Algebra*, including quadratic equations, compound interest and annuities. *Geometry*: plane geometry, polygons, circles, the position of a point and plane in space, solid geometry, polyhedrons, spheres, cones. *Trigonometry*, its principles, formule, and applications. *Descriptive Geometry*: projection, intersections, &c. *History and Geography*: the distribution of land and water on the globe surface, latitude and longitude, isothermal lines, climate, the races of man, the political geography of Asia and the East, the political geography of Europe.

A special class of instruction is established to prepare students to pass the Entrance Examination; it is held from 1st October to 31st July, and the charge for instruction is 70 francs (£2 16s.) per month, or 630 francs (£25 4s.) for the nine months' preparatory tuition, which comprises—(1) daily exercises in the atelier in architectural drawing and elementary architectural composition; (2) drawing from the east (ornament and figure) for six hours a week; (3) courses of lectures on mathematics, geometry, descriptive geometry, history and geography, and literary composition.

The general programme of instruction to be followed in the three years' course is divided between the ateliers, the drawing school, and the lectures.

In the *Ateliers* the Professors guide and instruct the pupil in the competitions of design, explain the programmes, and watch over the work in all its details.

In the *Drawing School* the studies are developed from the east and from the life, and all pupils are required to attend three times a week for two hours each.

The *Lectures* are given in nineteen distinct

courses, the subjects of each of which may be generalised thus:—

1. *Stereotomy*: 40 lessons.—Intersections of surfaces and solids, masonry, vaults, groins, domes, stairs, timber framing, timber floors and roofs, cast and wrought iron and its management, iron framings and roofs, iron castings, &c. &c. (*First year.*)
2. *Physics*: 30 lessons.—General properties and forms of matter, heat, hygrometry, meteorology, magnetism, electricity, electro-magnetism, acoustics, light. (*First year.*)
3. *Chemistry*: 25 lessons.—General principles, oxygen, hydrogen, water, its properties, analysis, filtration, purification, atmospheric air, refrigerators, sulphur and its products, chlorine, silice and silicates, sand, carbon, its products and combinations, potash, saltpetre, lime, aluminium, clay, iron, zinc, tin, lead, copper, bronze, &c. &c. (*First year.*)
4. *Surveying, Levelling, and Topography*: 10 lessons.—The survey and construction of topographical plans, theory and practice of the use of surveying instruments, town and house surveys, triangulation, levellings, field exercises. (*First year.*)
5. *Stability of Constructions*: 45 lessons, in two sections, viz.: *Introduction*, 20 lessons.—I. Algebra. II. Analytic geometry, trigonometry, graphic arithmetic. III. Mechanics, kinematics, dynamics, statics, graphic statics. (*First year.*)
Stability: 25 lessons.—I. Strength of materials, resolution of forces, tension, compression, shearing, flexion, coefficients of resistance and safety, modulus of elasticity. II. Beams, loaded uniformly or unequally, with several bearings, timber floors, iron floors and framings, columns, piers, arches in metal. III. Masonry, walls, retaining walls, abutments, vaults. IV. Framed systems, beams, trusses, arches, &c. (*Second year.*)
6. *Geology*: 12 lessons.—The earth and general principles, rocks and fossils and geological succession, rocks and minerals, terrestrial heat, hot springs, artesian wells, volcanoes and earthquakes, geological periods, application of geology, minerals and rocks used in construction, manufactures and arts. (*First year.*)
7. *Natural History*: 16 lessons.—Anatomy, physiology and classification of plants useful for ornamental compositions, the character and behaviour of flowers, plants, and trees, with which the architect should be acquainted, for landscape and garden design; the organisation and classification of animals, of those species used in design. (*First year.*)
8. *Shadows*: 12 lessons.—The theory and practice, and the application as illustrated by examples. (*First year.*)
9. *Perspective*: 12 lessons.—General principles, linear perspective, atmospheric perspective, solution of various problems, consideration of expeditious procedure. (*First year.*)
10. *Applied Physics*: 15 lessons.—Heating, fuel, smoke, radiation, hot air, electricity, loss of heat by walls, window ventilation, tables and formulae, ventilation: theory and practice, water supply and distribution, gas fitting, lightning conductors, electric lighting, &c. (*Second year.*)
11. *Applied Chemistry*: 24 lessons.—Manufactures: terra cotta, bricks, tiles, pottery, porcelain, glass, enamel. Metals: cast iron, wrought iron, steel, zinc, nickel, lead, tin, copper, bronze, &c. &c. Cementing materials: limes, cements, béton, concrete, asphalte, plaster, straw, &c. Preservation of materials: silicates, tar, paraffin, painting in distemper oil, &c. (*Second year.*)
12. *Applied Mechanics*: 16 lessons.—Work and its measurements, living and mechanical motive powers, use of machines in construction, machines and appliances for raising solid bodies, for raising liquids, methods of transport, working plant for public works, &c. (*Second year.*)
13. *Construction*: 35 lessons.—Matter, its stability in various forms; materials, their groupings, constructive properties, and varied natures; foundations, piers, walls, floors, vaults, roofs, roof coverings, drainage, precautions against insufficiency of material, defective workmanship, weak points of support, the stability and duration of edifice, the quantity, quality, and proper use of materials. (*Second year.*) The theoretic instruction is supplemented by visits to works in progress, workshops, and factories.
14. *Building Contracts and Accounts*: 20 lessons.—Relations of architect with clients and contractors, specifications, general conditions of contract, quantities, estimates, schedule of prices, contracts, agreements, measurements, accounts, details of various trades. (*Second year.*)
15. *Hygiene*: 20 lessons.—General ideas on anatomy and physiology, the influence of climate, site, and surroundings on health, the hygienic conditions which should exist in places inhabited by man or animals, warming, ventilation, drainage, sanitary legislation. (*Second year.*)
16. *Building Law*: 17 lessons.—The law:—Courts of justice, ordinary and administrative tribunals, real estate, personal property, public property, ways, roads, canals, streams, rivers, departmental and communal property, ownership, means of acquisition, prescriptive possession, restrictions on ownership, mines, quarries, servitudes of various descriptions, party walls, fences, prospect, line of frontage, levels, height

of buildings, materials of construction, dangerous structures, military requirements, insanitary and dangerous factories, expropriation for public service, contracts for work and for labour, specifications and estimates, the architect, his position, remuneration, privileges, and responsibilities, sanitary legislation, insanitary dwellings. (*Third year.*)

17. *Political Economy*: 14 lessons.—General considerations, theory of wealth, cost of production, barter, money, credit, rent, Government control, regulations affecting property, contracts, labour, police, industrial undertakings, labour and capital, bills of exchange, relations of contractors and workmen, profit sharing, emigration. (*Third year.*)
18. *History of Architecture*: 45 lessons.—The comparative history of every period of the art, of antiquity in the East, Egypt, Greece, and Rome, the Middle Ages, the Renaissance, and in modern times the causes which determine the visible effects are sought out, and the means by which they have been produced demonstrated. (*Third year.*)
19. *Theory of Architecture*: 20 lessons.—The theory of art in general, the principles which govern and influence architectural designs in conception, arrangement, and execution. (*Third year.*)

Of these nineteen chairs or lectureships, three, building law, hygiene, and political economy, have been founded and endowed by private persons, the first by an English lady, Dr. Emily Bovill Sturge,* who made the acquaintance of M. Trélat in discussing his paper on "Working-Class Dwellings" at the International Congress of Hygiene, 1878, became interested in the *Ecole Spéciale*, and in 1885 endowed this chair.

The yearly "séances d'ouverture," presided over by some highly placed and distinguished man in the State, in letters, or in art, supported by others of like standing, are marked by the eloquent and

impassioned addresses of the energetic founder and director, reviewing the year's work of the school, and particularly the studies of ancient buildings made during the vacation, the students' work being publicly exhibited on these occasions.

In 1900 nineteen diplomas were granted as the result of the final examinations and competitions, and ten certificates in Sanitary Science.

The old students who have passed a satisfactory leaving examination have established the *Société des Anciens Elèves de l'Ecole Spéciale d'Architecture*, numbering some 350 members, natives not only of France but coming from many countries, as Roumania, Greece, Turkey, Asia Minor, Hayti, Egypt, Poland, Spain, Mexico, Argentina, Brazil, &c., thus widely spreading the instruction received in Paris, and the influence of French art.

For the past ten years the advantages given to State-supported schools, as the *Ecole des Beaux-Arts*, by the possibility of students obtaining partial exemption from military service by successful progress there, has affected this *Ecole*, reducing the total number of students from over 100 to about 80. The present annual rate of admission is about 30 successful out of 40 who come up for the Entrance Examination. About 27 pass by examination from the third to the second class, and about 22 from the second to the first class.

The *Ecole Spéciale* is distinguished from the *Ecole des Beaux-Arts* by its express object of providing the high and complete professional training of the architect; its aims are less highly artistic than those which lead up after eight or ten years or more of constant study to the gaining of the Grand Prix de Rome, &c., by students highly qualified by natural talents, but these aims are necessarily more precise and exact, since they must be attained in three or four years, during which period this strict professional training demands from all the pupils constant daily attendance at the schools, and continuous home work, besides the vacation studies, conditions which do not exist in the *Ecole des Beaux-Arts*, where the student has more freedom in the occupation and distribution of his time.

The whole aim and object of M. Trélat's efforts in the cause of an architectural education may be summed up in three words, adopted as the motto of the *Ecole*, "VIS SUPERBA FORME."

* Emily Bovill Sturge, Doctor in Medicine, Paris, Officer of the Academy, studied medicine in Edinburgh, and four years in the medical schools of Paris; established in practice in London in 1877, but, her health failing, died at Nice 1886.



9, CONDUIT STREET, LONDON, W., 6th April 1901.

CHRONICLE.

The Institute Form of Contract.

The main business before the meeting last Monday was the consideration of various amendments to the Institute Form of Conditions of Contract. As explained at the meeting in December, when the matter was last before the Institute, some two or three years ago the Council was approached by the Institute of Builders with a view to getting such modifications made in the Form as would render it acceptable to both parties. The Council had thereupon appointed a Special Committee to meet representatives of the Institute

of Builders and discuss the matter. Several meetings were held, which resulted in the series of amendments brought before the general body last December. In consequence of opposition on the part of members to the arbitration clause as amended, the Council decided not to press the matter at that meeting, but to postpone it for further consideration. The Chairman informed the Meeting last Monday that subsequent negotiations showed that it had been impossible to come to any agreement with the Institute of Builders as to an arbitration clause which would be mutually satisfactory. As, however, the whole of the clauses had been overhauled, and in order that the labours of the Committee might not be wasted, the Council brought the amended clauses forward again with a view to taking the sense of the general body on the advisability of adopting such of them as seemed desirable, and remitting them to the Council so that they might be put into proper shape and a revised Form be issued.

Mr. Edwin T. Hall [F.], who explained to the Meeting the reasons for the various amendments, was a member of the special committee deputed to discuss the matter with the Institute of Builders.

The clauses as they stand in the existing Contract Form, and the clauses as amended, are printed below in parallel columns :—

The Original Clauses.

1. The works shall be carried out in accordance with the directions and to the reasonable satisfaction of the Architect in accordance with the said Drawings and Specification, and in accordance with such further drawings, details, and instructions in explanation of the same as may from time to time be given by the Architect. The Contract Drawings and Specification shall remain in the custody of the Architect, and shall be produced by him at his office as and when required by the Employer or by the Contractor.

12. The Contractor shall not vary from the Drawings or Specification except as provided by Clause 5, or by the authority of the Architect, which is to be sufficiently proved by any writing or drawing given by him or by any subsequent written approval by him. If the work shown on any of the details or the further drawings or details referred to in Clause 1, or necessary to comply with any instructions, directions, or explanations which may be given from time to time by the Architect, be, in the opinion of the Contractor, in excess of that comprised in the Contract, he shall, before proceeding with such work, give notice in writing to this effect to the Architect. In the event of the Architect and Contractor failing to agree as to whether or not there is any excess, and of the Archi-

The Amended Clauses.

1.—The works shall be carried out in accordance with the directions, and to the reasonable satisfaction of the Architect, in accordance with the said Drawings and Specification, and in accordance with such further drawings, details, and instructions in explanation of the same as may from time to time be given by the Architect. If the work shown on any such further drawings or details, or necessary to comply with any such instructions, directions, or explanations, be, in the opinion of the Contractor, in excess of that comprised in the Contract, he shall, before proceeding with such work, give notice in writing to this effect to the Architect. In the event of the Architect and Contractor failing to agree as to whether or not there is any excess, and of the Architect deciding that the Contractor is to carry out the said work, the Contractor shall accordingly do so, and the question whether or not there is any excess, and if so the amount thereof, shall, failing agreement, be settled by the Arbitrator as provided in Clause 32, and the Contractor shall be paid accordingly. The Contract Drawings and Specification shall remain in the custody of the Architect, and shall be produced by him at his office as and when required by the Employer or by the Contractor.

12.—The Contractor shall, when authorised by the Architect, or as provided by Clause 5, vary by way of extra or omission from the Drawings or Specification; such authorisation is to be sufficiently proved by any writing or drawing given by the Architect, or by any subsequent written approval by him. No claim for an extra shall be allowed unless it shall have been executed under the provisions of Clause 5, or by the authority of the Architect as herein mentioned. Any such extra is hereinafter referred to as an authorised extra.

The Original Clauses.

tect's deciding that the Contractor is to carry out the said work, the Contractor shall accordingly do so, and the question whether or not there is any excess, and if so the amount thereof, shall, failing agreement, be settled by the Arbitrator as provided in Clause 32, and the Contractor shall be paid accordingly. No claim for an extra shall be allowed unless it shall have been executed under the provisions of Clause 5, or by the authority of the Architect as herein mentioned. Any such extra is hereinafter referred to as an authorised extra.

17.—Any defects, shrinkage, or other faults which may appear within months from the completion of the works, arising in the opinion of the Architect from materials or workmanship not in accordance with the Drawings and Specification or the instructions of the Architect, or any damage to the pointing by frost appearing within the like period, shall upon the directions in writing of the Architect, and within such reasonable time as shall be specified therein, be amended and made good by the Contractor at his own cost, unless the Architect shall decide that he ought to be paid for the same; and in case of default the Employer may employ and pay other persons to amend and make good such defects, shrinkage, or other faults or damage, and all expenses consequent thereon or incidental thereto shall be borne by the Contractor and shall be recoverable from him by the Employer, or may be deducted by him from any moneys due or that may become due to the Contractor. Should any defective work have been done or material supplied by any sub-contractor or other person* employed on the works who has been nominated or approved by the Architect, the Contractor shall be liable to make good in the same manner as if such work or material had been done or supplied by the Contractor, and been subject to the provisions of this and the preceding clause.

* The omission of these words "or other person" is the sole difference between the original and the revised Clause 17.

20.—No sub-contractor or other person nominated by the Architect shall be employed upon the works against whom the Contractor shall make what the Architect considers reasonable objection, or who will not enter into a contract with the Contractor guaranteeing the due performance of his work, and indemnifying the Contractor against any claims arising out of misuse by the sub-contractor or his workmen of any scaffold erected or plant employed by the Contractor, or that may be made against the Contractor in consequence of any act, omission, or default of the sub-contractor, his servants or agents.

21.—The Contractor shall be responsible for all structural and decorative damage to property, and for injury caused by the works or workmen to persons, animals, or things, and shall hold the Employer harmless in respect thereof. He shall also be responsible for all injuries caused to the buildings, the subject of this Contract, by frost, or other inclemency of weather, and shall reinstate all damage caused by the same, and thoroughly complete the whole of the works.

28.—The provisional sums mentioned in the Specification for materials to be supplied or for work to be performed

The Amended Clauses.

17.—Any defects, shrinkage, or other faults which may appear within months from the completion of the works, arising in the opinion of the Architect from materials or workmanship not in accordance with the Drawings and Specification or the instructions of the Architect, or any damage to pointing by frost appearing within the like period, shall upon the directions in writing of the Architect, and within such reasonable time as shall be specified therein, be amended and made good by the Contractor at his own cost, unless the Architect shall decide that he ought to be paid for the same; and in case of default the Employer may employ and pay other persons to amend and make good such defects, shrinkage, or other faults or damage, and all expenses consequent thereon or incidental thereto shall be borne by the Contractor and shall be recoverable from him by the Employer, or may be deducted by him from any moneys due or that may become due to the Contractor. Should any defective work have been done or material supplied by any Sub-Contractor employed on the works who has been nominated or approved by the Architect, the Contractor shall be liable to make good in the same manner as if such work or material had been done or supplied by the Contractor, and been subject to the provisions of this and the preceding clause.

20.—All Specialists, Merchants, Tradesmen, or others executing any work, or supplying any goods for which prime cost prices or provisional sums are included in the Specification, who may at any time be nominated, selected, or approved by the Architect, are hereby declared to be Sub-Contractors employed by the Contractor; but no such Sub-Contractor shall be employed upon the works against whom the Contractor shall make what the Architect considers reasonable objection, or who will not enter into a Contract with the Contractor upon terms and conditions consistent with those in this Contract, and securing the due performance and maintenance of the work supplied or executed by such Sub-Contractor, and indemnifying the Contractor against any claims arising out of the misuse, by the Sub-Contractor or his workmen, of any scaffold erected or plant employed by the Contractor, or that may be made against the Contractor in consequence of any act, omission, or default of the Sub-Contractor, his servants or agents, and against any liability under the Workmen's Compensation Act 1897, or any amendment thereof.

21.—The Contractor shall be responsible for all structural and decorative damage to property, and for injury caused by the works or workmen to persons, animals, or things, and shall hold the Employer harmless in respect thereof, and also in respect of any claim made under the Workmen's Compensation Act 1897, or any amendment thereof, by any person in the employ of the Contractor. He shall also be responsible for all injuries caused to the buildings, the subject of this Contract, by frost or other inclemency of weather, and shall reinstate all damage caused by the same, and thoroughly complete the whole of the works.

28.—The provisional sums mentioned in the Specification for materials to be supplied or for work to be per-

The Original Clauses.

by special artists or tradesmen, or for other works or fittings to the building, shall be paid and expended at such times and in such amounts and to and in favour of such persons as the Architect shall direct, and sums so expended shall be payable by the Contractor without discount or deduction, or (without prejudice to any rights of the Contractor existing under the Contract referred to in Clause No. 20) by the Employer to the said artists or tradesmen. The value of works which are executed by the Contractor in respect of provisional sums, or in additional works, shall be ascertained as provided by Clause 13. At the settlement of the accounts the amount paid by the Contractor to the said artists or tradesmen, and the said value of such works executed by the Contractor, shall be set against all such provisional sums or any sum provided for additional works, and the balance shall be added to or deducted from the contract sum.

29. The Contractor shall, unless otherwise stated in the Specification, provide and erect all necessary scaffolding and plant for the due execution by the artists and tradesmen referred to in the preceding clause of the work entrusted to them. He shall also permit of the execution of work by any other artists or tradesmen who may be engaged by the Employer.

32.—Provided always that in case any dispute or difference shall arise between the Employer or the Architect on his behalf and the Contractor, either during the progress of the works or after the determination, abandonment, or breach of the Contract, as to the construction of the Contract, or as to any matter or thing arising thereunder (except as to the matters left to the sole discretion of the Architect under Clauses 4, 9, and 19, and the exercise by him under Clause 18 of the right to have any work opened up), or as to the withholding by the Architect of any certificate to which the Contractors may claim to be entitled, then either party shall forthwith give to the other notice of such dispute or difference, and such dispute or difference shall be and is hereby referred to the arbitration and final decision of

or, in the event of his death or unwillingness or inability to act, of
or, in the event of his death or unwillingness or inability to act, of a person to be appointed on the request of either party by the President for the time being of The Royal Institute of British Architects, and the award of such Arbitrator shall be final and binding on the parties. Such reference, except on the question of certificate, shall not be opened until after the completion or alleged completion of the works, unless with the written consent of the Employer or Architect and the Contractor. The Arbitrator shall have power to open up, review, and revise any certificate, opinion, decision, requisition, or notice, save in regard to the said matters expressly excepted above, and to determine all matters in dispute which shall be submitted to him, and of which notice shall have been given as aforesaid, in the same manner as if no such certificate, opinion, decision, requisition, or notice had been given. Upon every or any such reference the costs of and incidental to the reference and award respectively shall be in the discretion of the Arbitrator, who may determine the amount thereof, or direct the same to be taxed as between solicitor and client or as between party and party, and shall direct by whom and to whom and in what manner the same shall be

The Amended Clauses.

formed by special artists or tradesmen, or for other works or fittings to the building, shall be paid and expended at such times and in such amounts and to and in favour of such persons as the Architect shall direct, and sums so expended shall be payable by the Contractor without discount or deduction, or (without prejudice to any rights of the Contractor existing under the Contract referred to in Clause No. 20) by the Employer to the said artists or tradesmen. The value of works which are executed by the Contractor in respect of provisional sums, or in additional works, shall be ascertained as provided by Clause 13. At the settlement of the accounts the amount paid by the Contractor to the said artists or tradesmen, and the said value of such works executed by the Contractor, shall be set against all such provisional sums or any sum provided for additional works, and the balance, after allowing *pro rata* for the Contractor's profits at the rates contained in the Contractor's original estimate, shall be added to or deducted from the contract sum, provided that in estimating the amounts paid as last herein provided no deductions shall be made by or on behalf of the Employer in respect of any damages paid by the sub-contractor to the Contractor, the intention being that the Contractor and not the Employer shall have the benefit of any such damages.

29.—The Contractor shall permit the execution of work by any other artists or tradesmen who may be engaged by the Employer.

32.—Provided always that in case any dispute or difference shall arise between the Employer or the Architect on his behalf and the Contractor, either during the progress of the works or after the determination, abandonment, or breach of the Contract, as to the construction of the Contract, or as to any matter or thing arising thereunder (except as to the matters left to the sole discretion of the Architect under Clauses 4, 9, and 19, and the exercise by him under Clause 18 of the right to have any work opened up), or as to any objection by the Contractor to any certificate, finding, decision, requisition, or opinion of the Architect, or to the withholding or failure by the Architect to give the same, then either party shall forthwith give to the other notice of such dispute or difference, and such dispute or difference shall be and is hereby referred to the arbitration and final decision of

or, in the event of his death or unwillingness or inability to act, of

or, in the event of his death or unwillingness or inability to act, of a person to be appointed on the request of either party by the President for the time being of the Royal Institute of British Architects, and the award of such Arbitrator shall be final and binding on the parties. And the Arbitrator shall have power to determine all such matters in dispute except as aforesaid which shall be submitted to him, and of which notice shall have been given as aforesaid. The works shall not be stopped pending such reference excepting by the direction in writing or award of the Arbitrator. If either party desires to have such dispute or difference determined forthwith, he shall give written notice to that effect to the other party, and the Arbitrator shall, with the assent in writing of the other party, proceed with the arbitration. In the event of the other party failing within days of such notice to give to the other his assent in writing to the immediate determination of such dispute or difference, the Arbitrator shall, after written notice to the non-assenting party of a time and place of hearing, decide whether such dispute or difference shall be immediately

The Original Clauses.

borne and paid. This submission shall be deemed to be a submission to arbitration within the meaning of the Arbitration Act 1889.

The Amended Clauses.

determined or whether such determination shall await the completion or alleged completion of the works, and the same shall be determined at such time or times as the Arbitrator shall decide. If in any such reference the Arbitrator shall be of opinion that either party has been unreasonable or vexatious or dilatory either in invoking or in insisting upon reference or in the mode of its conduct, or that injury from delay or otherwise has been occasioned thereby to the other, he may by his award indemnify the latter in respect of such injury. Upon every or any such reference the costs of and incidental to the reference and award respectively shall be in the discretion of the Arbitrator, who may determine the amount thereof, or direct the same to be taxed as between solicitor and client, or as between party and party, and shall direct by whom and to whom and in what manner the same shall be borne and paid. This submission shall be deemed to be a submission to arbitration within the meaning of the Arbitration Act 1889.

Discussion.

Mr. EDWIN T. HALL, F.R.I.B., moved the acceptance of the amended Clause No. 1. The clause was identical with the existing Clause 1, excepting that a portion of the old Clause 12 had been transferred to it, because it came in fitter sequence there than in Clause 12, which dealt with variations. There was no practical change involved.

Mr. MAURICE B. ADAMS [F.] seconded, and the motion, having been put to the Meeting, was carried.

Mr. HALL, in moving the adoption of the amended Clause 12, pointed out that the old clause laid down that the contractor should not vary from the drawings except by the authority of the architect. One or two solicitors to members of the Institute, however, had drawn attention to the fact that there was nothing in the Contract which said that the builders should vary by order of the architect. It was quite possible that a builder might refuse to vary at all, and that there was no power given to the architect to compel him to vary. Therefore, instead of its being put in the negative form, that he shall not vary except by the authority, it now reads that the contractor "shall, when authorised," vary. That, with the transposition of a portion of the old clause to Clause 1, as already explained, was the only change made in the clause.

Mr. H. HARDWICKE LANGSTON [A.] seconded.

Mr. C. H. BRODIE [A.], referring to the fact that the old Conditions gave no power to the architect to compel the carrying out by the builder of extra works, said that an actual case was brought before the Practice Committee, and they reported upon it to the Council; and he was glad to see that an alteration making in the direction they wished for had been proposed. But he did not think the change went quite far enough. He would move the insertion of the words "instructed or," so that the clause should read, "the contractor shall, when instructed or authorised by the architect"; and, lower down, the insertion of the words "instruction or," so as to read "such instruction or authorisation is to be sufficiently proved," &c.

Mr. Brodie's amendment having dropped for want of a seconder, the original motion was put from the Chair and carried.

Mr. HALL moved the adoption of the amended Clause 17. The only change was the omission of the words "or other person," as explained in the note. The words had been taken out to meet an objection of the builders that, supposing the employer brought upon the works a separate contractor with whom the head contractor himself

had no relation whatever, it was not fair that he (the head contractor) should be responsible for anything done by the separate contractor. That was felt to be a perfectly just objection, and therefore the words "or other person" were omitted. It meant in effect that if any defective work was done by the chief contractor or any of his sub-contractors, persons mentioned in the specification, he (the chief contractor) was to be responsible, but he was not to be responsible if it was done by a person with whom he had no relation whatever.

Mr. LANGSTON moved an addition to the second part of Clause 17, so that it should read, "Should any defective work have been done or material supplied by any sub-contractor employed on the works who has been nominated or approved by the architect, and whose nomination the contractor has also approved," or words to that effect. He wanted to mark the contractor's consent to the nomination and approval of the architect.

After some further discussion Mr. LANGSTON withdrew his amendment in favour of a proposal by Mr. SLATER to insert the words "subject to Clause 20" after "nominated or approved by the architect."

Mr. HALL having suggested that "as provided in Clause 20" would meet the case better, MESSRS. SLATER and LANGSTON agreed to the modification, and the Meeting adopted the clause with those words inserted as indicated.

Mr. HALL moved the adoption of Clause 20, and explained the reason for its amendment. It was radical, but very essential. He had been professionally engaged in a very heavy lawsuit, and the amendment was the outcome of it. The point involved was this: In a large contract he was concerned in, there had been no dispute or difference at all with the builder until the end of the contract, but then the builder took the point that any sub-contractor who was nominated or approved by the architect *ipso facto* became a contractor of the employer, and that the builder was absolutely relieved of any responsibility for anything done by the sub-contractor; and not only that, but if he caused delay the employer was liable in damages to the builder. The Divisional Court had decided in favour of the employer. This decision was appealed against, and the appeal was heard last Friday, but the Court of Appeal had not at present delivered judgment. It was to avoid such a contingency again that this amendment was proposed, and the Council of the Institute of Builders had agreed to the alteration. The clause now provided that "all specialists, merchants, tradesmen, or others executing any work, or

supplying any goods, for which prime cost prices or provisional sums are included in the specification, who may at any time be nominated, selected, or approved by the architect, are hereby declared to be sub-contractors employed by the contractor." That, the Council of the Institute contended, was the practice; the Institute of Builders had assented to it, and therefore these words were introduced.

Mr. HUDSON seconded the clause, which was thereupon put from the Chair and carried.

Mr. SLATER moved Clause 21, which he said simply brought in the Workmen's Compensation Act.

Mr. MAURICE B. ADAMS seconded, but thought it should be specified that the contractor should provide for watching. He had sometimes found a difficulty in getting watching done, and things were damaged by persons intruding on the premises. It might be useful with a troublesome man to have a penalty for deficient watching.

The CHAIRMAN thought that that was a matter to put in the Specification rather than in the Contract.

Clause 21 was then put and carried.

Mr. HALL, moving Clause 28, said he would try to explain what was rather an intricate point. The old clause provided that at the settlement of the accounts the amount paid by the contractor to the special artists or tradesmen shall be set against the provisional sums, and the balance shall be added to or deducted from the contract sum. The point that arose was this: If the contractor entered into a sub-contract providing that if the sub-contractor did not complete his work by a given date he should pay as liquidated and agreed damages the sum of, say, £12 a week to the contractor, under the wording of the old clause these damages would enure to the benefit, not of the contractor, but of the employer. That had been decided by the Court. Therefore they had endeavoured to correct this, which was a great hardship on the builder, and contrary to their intention in drawing up the original clause. The new clause showed clearly that the contractor, and not the employer, should have the benefit of any such damages. Such a provision was manifestly in the builder's interest, and also in the interest of the employer, because if the builder could not get those damages a new relation was created, where the employer might conceivably be responsible.

Mr. SLATER seconded, the clause was put and carried.

Mr. HALL went on to move Clause 29, explaining that there was a difference here which must be carefully noted. The old Form provided that "The contractor shall, unless otherwise stated in the specification, provide and erect all necessary scaffolding and plant for the due execution by the artists and tradesmen referred to in the preceding clause of the work entrusted to them." That was now omitted, it being held that that was a matter that ought to go into the specification. Personally he thought it would have been better in the contract; but as long as they did not forget to put it in the specification it was all right. That was the only difference between the old and the amended clause.

Mr. MAURICE B. ADAMS asked what the objection was to having it in the contract. Was it that they should be allowed to use the scaffolding on shifting it sufficiently?

The CHAIRMAN explained that the contractor could not estimate what amount of scaffolding he would have to erect, fix, and take down. They therefore thought it better that any amount of scaffolding to be provided for special purposes should be put in the specification rather than appear as a general condition in the contract.

Mr. MAURICE B. ADAMS seconded, and the clause after some further discussion was agreed to.

Mr. G. H. FELLOWES PRYNNE [F.] moved the rejection of the amended Clause 32, and that the present Clause 32 should remain as part of the Form, with the addition of No. 16 to the excepted clauses; that is to say, that the

matter in parentheses should read as follows: "(except as to the matters left to the sole direction of the architect under Clauses 4, 9, 16, and 19, and the exercise by him under Clause 18 of the right to have any work opened up.)" It was most material that Clause 16 should be included among the exceptions. For a contractor to have the power at any time during the contract to call for an arbitration seemed to him a most dangerous thing. The architect was often now placed in a position of very considerable difficulty, but his difficulties would be considerably increased if the builder should, at any time an architect was dissatisfied with a certain number of bricks, immediately demand an arbitration. The worry to the client and the worry to the architect himself would be almost inconceivable. Again, wholly independent of that, the architect's position would be entirely undermined. Supposing that the architect condemned a certain amount of timber, and that the builder at once demanded an arbitration. It was often extremely difficult in the country to get an arbitrator down at a moment's notice, and therefore it meant certain delay to the works in progress. The arbitrator, again, might be an excellent arbitrator in every point, yet might not at all judge of material in the same way as the experienced architect; therefore it was a most dangerous clause, as weakening the position of the architect in the eyes of his client. Then, again, there was a third point: the Builders were prepared to accept almost any condition put before them if the Institute would accept this one; their one idea was to get this condition of arbitration on the materials. It meant taking away entirely the architect's one power in this contract—namely, that of condemning materials in a case of necessity. It had been said that there were architects who condemned materials viciously. Such men he thought were very few and far between. Their one idea was to get what they believed to be fair for men who were thoroughly experienced in their professional work, and they could not draw up conditions for those who were incompetent or vicious.

The SECRETARY, at the request of members, read Clause No. 16, and it being the general opinion of the Meeting that Clause 16 should be included, Mr. FELLOWES PRYNNE formally moved the rejection of the Amended Clause 32; and, having been seconded by Mr. MAURICE ADAMS, the motion was put from the Chair and carried.

Mr. FELLOWES PRYNNE then moved the insertion of the figure "16" between "9" and "19" in the present Arbitration Clause.

Mr. PRYCE CUSXON seconded, and the motion was agreed to.

Mr. HALL thought that the amendment would render necessary a slight alteration in Clause 16—that the following words would have to be added: "and in respect of all matters herein the Architect's decision shall be final."

The CHAIRMAN thought that very possible, and the matter would be drawn attention to when the matter came before the Institute for its final sanction.

Mr. PRYNNE suggested that the Conditions should be printed on foolscap size as well as the larger size if necessary. The large paper of the present Form was very inconvenient for binding up.

Mr. SLATER suggested that it would be an improvement and a great convenience if the Agreement now printed on the first page were printed on a separate sheet. It was often necessary to attach additional conditions, and this was an awkward matter with the Form as at present issued.

The CHAIRMAN stated that these suggestions should be borne in mind in getting out the new Form.

Mr. PRYCE CUSXON [F.] said there was a point under Clause 13 which had cropped up in his practice as a surveyor which he should like to call attention to. [The speaker read the material part of the clause, which is as follows:

13.—“No variation shall vitiate the contract; but all authorised extras for which a price may not have been previously agreed, and any omission which may have been made with the knowledge of the Architect, or without his knowledge, provided he subsequently give a written sanction to such omission, shall be measured and valued, as herein-after provided, by *
; and a copy of such measurement and valuation shall be given to the contractor.”]

Mr. CUXSON assumed that whoever framed that clause did not mean that the contractor should have power to call upon the surveyor to give a copy of his dimensions, and yet the clause was quite capable of that interpretation. Moreover, he was sure he was correct in saying that it was not the usual practice for quantity surveyors in London to supply the contractors with a copy of the valuation account—the bill account—unless they paid the cost of copying such bill.

Mr. HALL said that “measurement” was certainly ambiguous as a phrase.

Mr. BRODIE suggested that the passage should read “a copy of the bill of such measurement shall be given to the contractor.” That was what they meant.

Mr. CUXSON said that the wording he proposed was as follows: “And a copy of the bill of such measurement and valuation shall be supplied to the contractor on payment by him of the costs thereof.”

The CHAIRMAN said that was a matter they could not deal with at the Institute; they could not deal with a payment between a quantity surveyor and a builder.

Mr. MATRICE B. ADAMS [F.] thought that as they put the surveyors' names down, they were certainly justified in saying what they should do, and they certainly should not do it without any payment.

The CHAIRMAN said he had no objection to their saying what they should do, but he had an objection to the question of payments between a builder and a quantity surveyor being introduced in that room.

Mr. SLATER said that if there was this ambiguity it had better be cleared up. If those words gave the contractor the right to ask for the whole of the measurements, there was not the slightest possible objection to altering it so that it should only be a bill or statement.

Mr. HALL agreed that there was objection to the present wording, although he had not realised it before. He thought the expression “bill or statement” would meet the difficulty, otherwise it might mean 2,000 pages of figures, and that would cost about £20 perhaps.

After further discussion, Mr. SLATER proposed the following wording: “And a copy of the bill or statement of such measurement and valuation.”

This was seconded by Mr. HALL, and the motion being put from the Chair was carried.

The CHAIRMAN, in conclusion, announced that the Council would bring the revised document in its entirety before the next meeting for the final sanction of the Institute before issuing.

Special Election to Fellowship.

At the meeting of the Council on the 1st inst. the following gentleman, being President of the Aberdeen Society of Architects, and found by the Council to be eligible and qualified for membership under the Charter and By-laws, was elected a Fellow of the Royal Institute:—

ARTHUR CLYNE, of 123½, Union Street, Aberdeen.

Consulting Architect to the Government of Bombay.

With respect to the President's announcement last December that the India Office had desired his assistance in the appointment of a Consulting Architect to the Government of Bombay, and inviting members inclined to offer themselves for the post to communicate with him, it remains to be stated that the President selected two names from among several applications received, and submitted them to the Secretary of State for India, together with testimonials, and photographs and drawings of their works, and that the choice of the India Office fell on Mr. John Begg [A.], *Ashpitel prizeman, Pugin Student 1890, Essay Medallist 1894.*

Mr. Begg, it may be mentioned, had to relinquish practice in Johannesburg on the outbreak of the war.

Protection of Buildings from Lightning.

A Committee, to be known as the Lightning Research Committee, has been organised by the Institute Council and the Council of the Surveyors' Institution, with the object of collecting and tabulating information from all parts of the country as to damage resulting to buildings from lightning-stroke.

The Committee owes its inception to Mr. Killingworth Hedges, who in his Paper on “The Protection of Public Buildings from Lightning,” read before the Institute in April last year, referred to the difficulty experienced by experts in getting accurate information as to injuries sustained by lightning-struck buildings, and urged the desirability of an inquiry by a recognised authoritative body as to how far buildings are rendered lightning-proof by modern systems of protection. Mr. Killingworth Hedges having since approached the Council on the matter, and secured the co-operation of the Surveyors' Institution, a committee consisting of the gentlemen mentioned below has been appointed. Towards the Committee's expenses the Institute Council have voted £25 per annum for three years; a similar vote is anticipated from the Surveyors' Institution, and applications for grants in aid of the inquiry are being considered by the Royal Society and other institutions.

The Lightning-Rod Conference, as the result of an exhaustive inquiry extending over three or four years, drew up and published with its Report in 1882 a Code of Rules for the Erection of Lightning-Conductors, which has served practically as a text-book on the subject up to the present time. Since the general adoption of these rules, however, no certain information has been collected on the effect of lightning-strokes on buildings provided with conductors. The present inquiry, therefore, by the collection of precise data, may serve to test in some measure the results accruing

from the rules laid down by the Lightning-Rod Conference nearly twenty years ago.

The Committee is constituted as follows:

Mr. John Slater, B.A. [F.], *Chairman*.

Major-General E. R. Festing, C.B., F.R.S.
(Victoria and Albert Museum, South Kensington).

Mr. J. Gavey, M.Inst.C.E., Assistant Engineer-in-Chief, General Post Office.

Mr. W. P. Goulding, F.R.G.S., F.S.I.

Dr. Oliver Lodge, F.R.S. (Birmingham University).

Mr. W. N. Shaw, F.R.S. (Royal Meteorological Society).

Mr. H. Heathcote Statham [F.].

Mr. A. R. Stenning [F.], F.S.I.

Mr. Arthur Vernon, F.S.I.

Mr. Killingworth Hedges, M.Inst.C.E., *Hon. Secretary*.

In pursuance of their inquiry the Committee seek the co-operation of competent observers in all parts of the country, with a view to obtaining accurate details, noted on the spot, of the effect of lightning-strokes on buildings, whether fitted with conductors or not. The Committee have held three meetings, and a Schedule of Questions is in preparation and will shortly be issued. Persons willing to act as observers will be requested to investigate any disaster from lightning occurring to a building in their neighbourhood, and to furnish the Committee with the details suggested in the Questions. Should the Committee desire additional particulars, such as measurements, &c., the observers will be requested to make further investigations, and any reasonable expenses will be defrayed by the Committee.

The following is the kind of information required:—Description and situation of building struck, height above sea-level, position with regard to other buildings and high trees, and propinquity to wells; whether rain was falling at the time—if not, whether rain preceded or followed the stroke, and at what interval; as to the number of lightning-rods on the building, giving position, height above roof, material (both of rod and staples), shape, sectional area, how finished at top and at bottom, condition after flash, &c.; whether conductor was continuous; particulars of earth-connection; when conductor was last examined and tested; nature of soil; the precise nature of the injury to the building; if any portion was set on fire; damage to metal-work, such as bells, rain-water and other pipes, electric bells or telephones; distance from conductor of portion of building affected; materials of roof-coverings, and position of gutters and down-pipes; whether conductor was in contact with any other metal; particulars as to metal-cresting, weather-cocks, finials, or flag-staffs on the building, stating distance from and height above conductor; if

conductor was struck, whether damaged portions can be obtained for examination, &c.

Members and others willing to assist the Committee by their observations are requested to communicate with the Secretary to the Committee at the offices of the Institute.

Architects' Benevolent Society.

The Annual General Meeting of the Architects' Benevolent Society was held in the Rooms of the Institute on the 13th March. On the motion of the President (Mr. Wm. Emerson), the Report of the Council was adopted as follows:—

The Council of the Architects' Benevolent Society, in making their Report to the contributors for the year of office 1900-1901, have the satisfaction to state that notwithstanding the many calls upon private benevolence during the period under review, the income has not only been maintained, but increased. Although the Society has suffered severely during the last few years by the death of many of its oldest and most generous supporters, its income, through the careful management of successive Councils, has not been permitted to diminish; but, on the other hand, the financial progress has scarcely kept pace with the demands on the charity of the Society. Last year it was thought that the Society's growing needs might be met by the generous response which an explanation of its aims and position would receive at a public dinner; but, in view of the state of public affairs at the time, the project was deferred to a more favourable opportunity. Still, as a special effort was necessary to enable the Council to carry on their philanthropic work without rejecting the claims of deserving applicants for relief, the President, with the Honorary Secretary, undertook to issue a letter of appeal to members of the profession in the United Kingdom and Ireland, and such a letter was sent out in June last. In view of the large number—some five thousand architects—to whom the appeal was made, the result was scarcely as favourable as might have been anticipated, but it was successful in so far that it enabled the Council to afford a larger measure of practical help where it was urgently needed than would otherwise have been possible. The names of those who responded to the appeal, with the amount of the contributions, were published in the *JOURNAL* of the Royal Institute of British Architects of the 10th of November, the amount received, or promised, in new annual subscriptions being £98 9s. 6d., and in donations £151 17s. 0d., while the total cost of issuing the appeal was £38 8s. 8d.

In connection with the appeal the Council wish to express their cordial appreciation of the efforts of Mr. E. Monson, who successfully exercised his influence in securing additional subscriptions and donations.

Suggestions have from time to time been received by the Council to the effect that the Society would be more liberally supported if its existence and objects were more widely known; but the Council fear that any further promulgation of the Society's aims than is at present attempted would place it under a burden of expense without a prospect of adequate return. The Council would remind subscribers that the Red Book has been issued annually for many years, not only to members of the Society, but to members of the Royal Institute of British Architects; that a considerable sum is spent yearly in advertising, and that advantage is taken of the hospitality of the columns of the JOURNAL of the Royal Institute to give publicity to the Society's proceedings. In addition to the currency thus given to the Society's affairs, the Council last year incurred the expense of the letter of appeal addressed to every practising architect in the three kingdoms. With these facts in view, it is felt that the lack of support accorded to the Society by the general body of the architectural profession must be attributed to other causes than absence of knowledge of its existence.

The Council, at the suggestion of a subscriber, have had also under consideration the desirability of issuing voting papers to members of the Society, and have arrived at the decision that such a system, instead of advancing the objects of the Society, would be a contravention of By-law 68, which states "that the names of persons relieved by the Society shall not be published." The Council feel that as the Society exists to assist members of a profession, or those dependent on them, privacy forms an essential part of its scheme of benevolence, and that the publicity which a system of voting entails would prevent many of those whom it is most desired to reach from seeking the help of the Society. The Council would, further, remind members that they have the privilege of nominating applicants for relief according to the amount of their subscription.

With reference to the Society's Income Account, the Council desire to draw attention to the fact that notwithstanding the amount received in subscriptions for the year was £522 0s. 6d., as compared with £469 3s. 0d. received in 1899, there was a balance at the debit of the account on the 31st December of £42 11s. 11d. It is the first time in the history of the Society that such a deficiency has occurred, and it is due to the large number of urgent applications for assistance which were considered and relieved. This bears eloquent testimony to the great need of the Society for further support. It is hoped that the deficit may be promptly covered by the acquisition of a sufficient number of new annual subscribers.

The number of applications for relief has been

greater than in any previous year, being fifty-five, as compared with forty in 1899. The sum thus distributed was £677 13s. 0d., while £112 10s. 0d. was paid to pensioners, making the total sum expended in relief £790 3s. 0d.

Two of the Society's pensioners having died during the year, their places were filled by eligible and deserving applicants.

The Council have to record, with great regret, the decease of two distinguished architects who acted as trustees for the Society—Mr. Charles Barry and Mr. Henry Currey. Both gentlemen had taken a lifelong interest in the Society, were frequently elected members of the Council, and were always helpful in promoting its usefulness. Other and more recent losses were Mr. H. C. Boyes, a member of the Council at the time of his decease, and Mr. D. P. Fordham.

Mr. William Emerson, President of the Royal Institute of British Architects, and Mr. Arthur Cates have been nominated by the Council for election as trustees, to fill the vacancies caused by the death of Mr. Barry and Mr. Currey.

The following gentlemen, being the five senior members, retire by rotation from the Council: Mr. R. St. A. Rounieu, Mr. W. Woodward, Mr. E. B. l'Anson, Mr. E. H. Martineau, and Mr. E. T. Hall. To fill these vacancies and that caused by the death of Mr. Boyes, the Council beg to nominate—Mr. Arthur Green, Mr. E. Monson, Mr. Sydney Smirke, Mr. H. L. Florence, Mr. Graham C. Awdry, and Mr. J. T. Christopher.*

The Balance Sheet and Income Account for the year ended the 31st of December 1900, audited by Mr. J. T. Christopher and Mr. Henry Hall, are submitted.

It remains for the Council to thank the Royal Institute of British Architects for office and other accommodation, and its officials for help and courtesy in any matter connected with the Society.

REVIEWS.

EXAMPLES FROM PIRANESI.

Roman Architecture, Sculpture, and Ornament: Selected Examples from Piranesi's Monumental Work. Published in Rome 1761. Reproduced from the Originals in Facsimile. Edited by William Young, F.R.I.B.A. Comprising 200 plates. Imperial folio, Lond. 1901. Price £5. 5s. net. [E. and F. N. Spon, Limited, 125 Strand.]

This work is a reproduction by lithography, in one volume, of selected examples from the splendid engravings in Piranesi's great work, a copy of the original edition of which, in some sixteen or eighteen volumes, is in the Library of the Institute. A somewhat saddened interest attaches to it as

* These gentlemen were duly elected at the Annual General Meeting.

the latest work on which its editor was engaged, he having seen the proofs through the press but a short time before his death, and in the preface we have his last words on the architectural tendencies of the day. To him these presented themselves during the last fifteen years in a return to Classic forms, and in making his selection of examples for this work he seems to have ever had in mind what would be most useful and interesting to the student rather than to the archaeologist—that which sets forth the proportions, the grouping, and the detail of the Roman buildings, both of the Classic and Renaissance times. Nearly one half of the book is devoted to details, many of them drawn to scale; and as lessons in design on a grand scale several of Piranesi's own architectural compositions are included. The simplicity and dignity and the powerful drawing of these designs are very remarkable, and worthy also of study as lessons in perspective.

Of the larger and better-known Roman buildings illustrated in the original work a fair selection is given, though we miss many notable examples. The plates relating to the Pantheon, both the general drawings and the details, are very fully given—thirteen in all including the fine interior view, but without the wonderful view across the Portico. Of the Colosseum only one plate is given, while there is none at all relating to the Theatre of Marcellus: this is the more to be regretted as those of this building in the original work are full of interest. The same remark applies to the omission of the splendid illustration of the Arch of Constantine; indeed, it is in this way the difficulty of making the best selection is brought home to us. To choose from the many splendid plates of Piranesi must have been no light task, and, with the objects the editor evidently had in view, one must admit it has been very well done.

Of special interest are the views of the old Basilica of St. Paul outside the walls, since destroyed by fire, and recently rebuilt on the old lines. In like manner also the view of the bridge and castle of St. Angelo (the mausoleum of Hadrian) shows the old surroundings of the Tiber, now all cleared away to make room for the new embankment of the river. Indeed, some of these illustrations serve to remind us how Rome has been altered almost beyond recognition in many localities, and are therefore valuable from an archaeological point of view, the environment of almost all of the buildings having been entirely changed since Piranesi's time.

The reproduction reflects great credit on the publishers: the general get-up of the book in paper, binding, &c., is excellent; the lithographs, though of course wanting in the vigour of the original engravings, are clear and carefully rendered; but as the original work is now rare, and its value something like £100, this

volume cannot fail to prove an instructive and acceptable book, on a subject of never-dying interest, more especially, as its editor remarks, when at present there seems to be a disposition among architects to revert to more strictly classical forms. If this should lead to a more intimate study of the principles which govern the proportions, and the knowledge that dictated the details of these historic monuments, the present republication will not have been undertaken in vain. On the contrary, it has brought its treasures within the reach of many to whom the original work is almost, if not altogether, inaccessible.

J. M. BRYDON.

MINUTES. X.

At the Tenth General Meeting (Business) of the Session 1900-1901, held Monday, 1st April 1901, at 8 p.m., Mr. Edw. A. Gruning, *Vice-President*, in the Chair, with 12 Fellows (including 8 members of the Council), 10 Associates (including 1 member of the Council), and visitors, the Minutes of the Meeting held 18th March [p. 245] were taken as read and signed as correct.

The Hon. Secretary announced the decease of Frederick Boreham, *Associate*, elected 1871.

The following candidates for membership were elected by show of hands under By-law 9, viz.:—

ROBERT STEPHEN AYLING [A. 1892, *Godwin Bursar* 1897] as *Fellow*.

NORMAN THORP [Probationer 1896, *Student* 1898, *Qualified* 1900], as *Associate*.

The following applicants for membership, found by the Council to be eligible and qualified according to the Charter and By-laws, and admitted by them to candidature, were recommended for election, viz.—As FELLOWS: Hippolyte Jean Blanc, R.S.A., F.S.A.Scot.; Charles Fitzroy Doll; Edmund Harold Sedding; As ASSOCIATE: Robert Douglas Wells, B.A.Cantab. [Probationer 1898, *Student* 1898, *Qualified* 1900].

The Chairman having announced the failure of the negotiations between the Council and the Institute of Builders in regard to the proposals for uniform Conditions of Contract, invited discussion on the amendments in the Institute Form resulting from the negotiations, with a view to the adoption of such as seemed desirable for the revised Form which the Council would lay before members at a subsequent meeting.

The Meeting agreed to the adoption of the amended Clauses 1, 12, 20, 21, 28, 29 as printed on the notice-paper [and now printed in the report of the meeting, p. 263], and made a further amendment to Clause 17 [p. 263].

The amended Clause 32 the Meeting rejected in its entirety, and resolved that the original clause be retained, with the addition of clause 16 among the clauses exempted from the operation of the arbitration clause [p. 264].

Mr. Pryce Cuxson [F.] having called attention to an ambiguity in Clause 13, an amendment to meet the objection was agreed to, on the motion of Mr. John Slater [F.], seconded by Mr. Edwin T. Hall [F.], [p. 264].

The Chairman having given notice of a Special General Meeting to be held on 15th April to consider the Council's recommendation that Mr. Emerson be requested to allow himself to be nominated as President for the ensuing year, and that By-law 26 be suspended, the proceedings closed, and the Meeting separated at 9.15 p.m.

